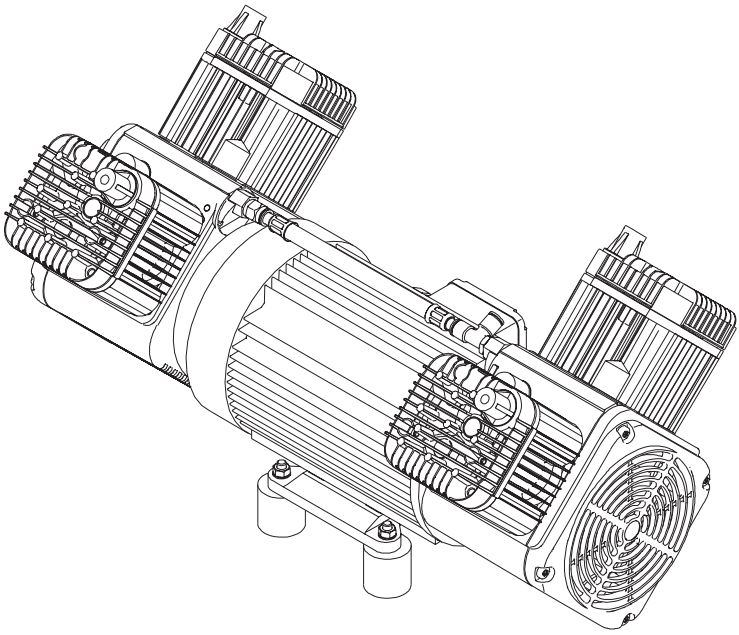
DÜRR TECHNIK
QUALITY AIR SOLUTIONS

GB

OPERATING INSTRUCTIONS OIL-FREE COMPRESSORS MARATHON



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The use of brand name, trade name, trademark etc. in this manual is covered by trademark protection legislation and must not be assumed to be free to use.

These operating instructions correspond with the technical standard of our products, subject to alteration and errors accepted.

The present operating instructions give you all the necessary advice for the proper and safe handling of the product.
Please read and carefully observe the operating instructions to avoid mistakes and dangerous situations.

The operating instructions are arranged as follows:

Chapter	Planned purpose	Target group
Chapter 1	Gives you safety advice and important general information for the product.	Installer, operator, qualified personnel, user
Chapter 2	Contains detailed instructions and advice for the transport, storage, installation and the initial operation of the product.	Operator, installer and qualified personnel
Chapter 3	Contains instruction and advice for safe technical handling of the product.	User
Chapter 4-5	Gives detailed instruction for cleaning, maintenance and servicing the product.	Operator, qualified personnel
Appendix	In the appendix you will find important technical information.	Qualified personnel

PREFACE

These operating instructions are valid for small oil-free compressors Marathon hereinafter called product.

The operating manual is only valid so long as your product complies with the status described within.

These instructions contain all details required for the transport, installation, operation, shut-down and maintenance of these products.

Therefore please read the operating instructions carefully prior to the first operation, thus ensuring the safe and economic application of the products.

When a fault occurs or maintenance is required which is not dealt with in the operating manual, You should contact our qualified personnel.
All service and maintenance work must be carried out by qualified personnel.
If service and maintenance work is neglected or carried out improperly, our warranty will be invalidated.

Should you have any problems understanding the operating instructions our qualified personnel will be pleased to help you.

Dürr Group

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CONTENT

1. Introduction and general advice ..6
1.1 Symbol explanation and definition..6
1.1.1 Symbol explanation.....6
1.1.2 Definitions.....6
1.2 General safety advice 6
1.3 Product description 8
1.3.1 Agreed application 8
1.3.2 Function description of the product 8
1.3.3 Supply schedule / Spare parts.....8

2. Transport, Storage, Initial operation.....9
2.1 Transport and storage 9
2.2 Transport and storage requirements..... 10
2.3 Assembly advice and initial operation 10
2.3.1 Environmental conditions 10
2.3.2 Vibration damping 11
2.3.3 Assembly position 11
2.3.4 Electrical installation 12
2.3.5 Motor protection..... 12
2.3.6 Protection type..... 13
2.3.7 Direction of rotation 13

3. Operating: Small oil-free compressor.....13
3.1 Compressed air connection 13
3.2 Suction filter..... 13
3.3 Start against pressure..... 13
3.4 Limiting the operating pressure .. 13

4. Cleaning 13

5. Maintenance.....14
5.1 Filter change 14

Appendix.....15
Appendix 1: Technical data 15
Appendix 2: Dimensions.....16
Appendix 3: Manufacturers Certificate 18
Appendix 4: Trouble shooting 19
Appendix 5: Exploded diagram.....21
Appendix 6: Parts list.....22
Appendix 7: Accessories list.....22
Appendix 8: Addresses.....24
Appendix 9: Index.....25

1. INTRODUCTION AND GENERAL ADVICE

1.1 Symbol explanation and definition

1.1.1 Symbol explanation

In the manual and on the product hand symbols and pictograms are used whose meaning you should memorise. These symbols help you to understand the information in this manual quicker and make you aware of potential danger or important advice.

Attention! Danger sign. It points out danger as well as rules and bans to prevent personal and /or danger to property.

Advice! Attention is brought to advise on the handling and economic use of product.

Warning against electric energy! Your life could be in danger. Make sure that all electrical work is carried out by a qualified electrician.

Warning advice. The product can start without warning!

Warning of hot surfaces! There is a danger of burns! Observe especially that these surfaces may still be hot after the product has been switched off. Work near these surfaces only after they have cooled off.

1.1.2 Definitions

User, Operator: The responsible Person who has the authorisation to use the product. The user must have been given instructions on the safe handling of the unit from the appropriate authority.
Operator Authority: Responsible for the safe installation, regular servicing and cleaning of the product.
Qualified personnel: Trained by the operating authority or by authorised Dürr Technik personnel who are aware of the dangers of the product and familiar with the technical aspects of the product. Qualified personnel are trained to carry out service and repair on the product.
Product: General term used for oil-free compressors Marathon.

1.2 General safety advice

During use, care and maintenance of the product, the following fundamental safety measures must be observed for the protection of the operator, maintenance and service engineers as well as the product:

During the development and manufacture of the product, the recognised regulations of the technical aspects, as well as the recognised valid standards and guidelines were taken into account and used. In addition the product has been designed and constructed in such a way that endangerment through the agreed use are minimized. Nonetheless we feel obliged to describe the following safety measures so the remaining dangers can also be minimized.

Warning! When electrical equipment is being used, the basic safety precautions must be followed, to prevent risk of fire, electric shock and personal injury.

Therefore please read the manual to hand, prior to starting work. Keep this manual within reach for the engineer and the operator. The information should be passed on to any successor.

During operation of the products the relevant laws and regulations for the place of deployment must be observed! In the interest of safe operation the authorised operator and the supervisory personnel are responsible for keeping within the regulations.
Check during all work on the product for possible dangers. All parts must be correctly fitted and all requirements fulfilled to ensure safe operation. Should the product be damaged in any way, the product should no longer be used. The product should only be repaired by experts. Mark the defect clearly and pull out the mains plug, so that until the repair is effected, no accidents or damage can occur through the defective product.

Take account of **environmental influences**! Do not operate the product in a wet or damp environment.

Do not use the power connection line for purposes it was not meant for. Do not pull the plug out of the socket by the cable. Only pull the plug from the socket by pulling the plug casing. Protect the cable against heat, oil and sharp edges.

In dangerous situations or during technical problems, separate the product at once from the power supply (pull the plug).

Check regularly the power supply cable and the casings of electrical components and if they are damaged, have them repaired by a qualified electrician.
Check the electrical equipment for external damage before work starts. Check thoroughly whether lines or cables are damaged. If there is damage, do not operate the product.

If there is damage, do not operate the product. **Pull out mains plug!**

For all maintenance and repair work the mains plug must be pulled out of the socket.

Attention! Work on electrical equipment must only be carried out by a qualified electrician.

Only original spare parts must be used. Otherwise there may be injury to the user.

Warning! The use of other spare parts and other accessories, as stated in this manual, can cause personal injury. Only use spare parts permitted by the manufacture!

1.3 Product description

1.3.1 Agreed application

The product is intended for the compression of air and non-aggressive gases.

The aspiration of fluids, aggressive or explosive gases is forbidden! It will cause danger to health and the possible danger of explosion or fire!

The product is designed for use with equipment or in a unit.
It should only be used if the manufacturer of the equipment or unit, in which the product is to be incorporated, has ensured that all requirements for safe operation have been fulfilled.
The product is designed for operation in dry, ventilated rooms. These products must not be operated in a damp or wet environment. In addition, operating near gases or flammable liquids is forbidden.

1.3.2 Function description of the product

The product produces oil-free, filtered compressed air.
Atmospheric air is aspirated via the suction filter. This air is compressed by the piston in the cylinder. The inlet or else the outlet valve cuts off in single flow direction, so that the compressed air is forced into the compressed airline system.

1.3.3 Supply schedule / Spare parts

Every production model consists of a basic model. The spare parts list enables the completion with a vibration damper set. These additional parts are shown with the position numbers in the appendices.

2. TRANSPORT, STORAGE, INITIAL OPERATION

2.1 Transport and storage

The product is sent from the factory in a specially padded transport carton. With this equipment is safe against transit damage. Always use the original packaging of the product if necessary.
Transport the product in an upright position.

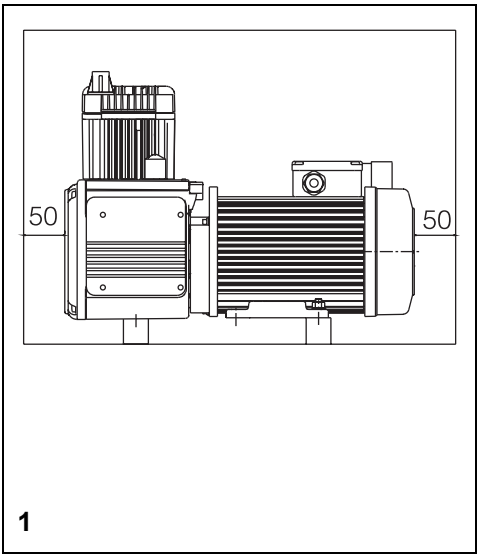
Protect the product during transport and storage against damp and extreme temperatures. Take special care that the electrical equipment does not get damp or wet.

The products must only be transported pressureless. Remove air from any fitted pressure containers and hoses.

The products are delivered for immediate assembly. Products still in the original packing can be stored in warm, dry and dust free rooms. If the products should be stored long term, e.g. as a replacement product, it must be protected against dust and damp.

Keep packaging if at all possible.

Environmental rules regarding the disposal of the packaging must be observed and to assist this please note the labels on the packaging.



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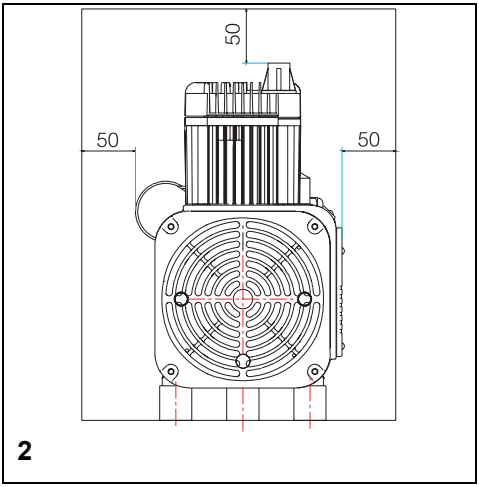

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2.2 Transport and storage requirements

Temperature: -25 °C to + 55 °C
Relative humidity: 10% to 90%
(without condensation)

2.3 Assembly advice and initial operation

The product is designed to be inserted into units. They should only be fitted by a trained engineer, who is familiar with any potential hazards. The product must only be operated when it has been made certain that all relevant safety requirements have been fulfilled.

2.3.1 Environmental conditions

The product must only be installed and operated in dry, well ventilated and dust free rooms.

Take care when choosing the site for installation that the product is easily accessible for operating, cleaning and maintenance. Especially the connection piece and the operational parts must be easily accessible.
The product should be installed on a level and sufficiently solid surface. To reduce vibration the supplied vibration dampers should be mounted. If the product is built into a machine or housing, it must be noted that the identification plate is visible and readable, without having to dismantle the product. Also ensure that the connection clamps are easily accessible when taking off or opening the housing.

Please observe that the suction side of the air filter is free.

When fitting into a housing it should be observed that the min. distance is kept (see fig. 1 and 2). It must also be noted, that there is sufficient ventilation. In certain cases an independent ventilation

system may be required. Please note that the power line connection and the airlines are not kinked.
The room temperature must not fall below 5 °C, otherwise problem free operation of the controls of the unit cannot be guaranteed.
The room temperature must not exceed 40 °C. Room temperatures above 40 °C will require additional ventilation. Most suitable ambient temperatures are between 10 °C to 15 °C.

Approx. 70% of the product induced electrical energy is converted into heat and is given off to the surrounding area.

The motor ventilator normally ensures effective pressurised cooling of the product. To do this the air must be able to flow to and for unhindered. Ventilation openings must be large enough to allow this to happen. In unsuitable cases, e.g. when the product is built-in, an independent air cooling system might be required.

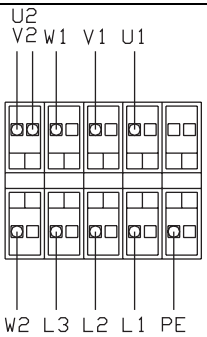
2.3.2 Vibration damping

The product produces vibrations. To dampen this, suitable vibration dampers must be used. Vibration absorbers specially made for these products can be found in the accessory list.
Please do not use rigid connections between the product and the pipeline system.

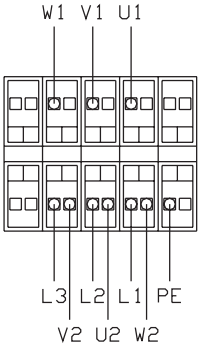
The wrong kind of vibration dampers or use of rigid connection can damage the product or the equipment into which the unit has been installed.

2.3.3 Assembly position

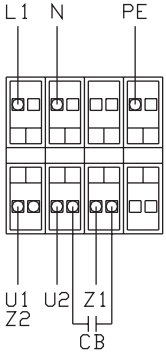
Products should be installed in the horizontal plane (see fig. 1 and 2).



3 Three-phase current / star connection



4 Three-phase current / threeangle connection



5 Alternating current

2.3.4 Electrical installation

The connection to the mains voltage supply must only be carried out by a qualified electrician!

Observe closely the local regulations for power undertakings.
The connection must only be carried out on a power supply with correctly installed protective conductor.
Please make sure that the connection cable does not run across the product.
The hot surface of the product could damage the insulation of the cable.
The electrical connection can be seen in the electrical diagram (fig. 3 to fig. 5) respectively the identification in the terminal box.

Fuse protection of the power circuits against overload and short circuiting: The power supply must be protected by all polar fuses corresponding to the short circuit current of the motor.

2.3.5 Motor protection

To protect the machines from high ambient temperature a temperature switch is build in at type no. **A-080** and **A-160**. This prevents an overheating oft the motor winding. The temperature switch turns off the machine at undue high ambient temperatures.

In the case of a motor blockade, for example on running against pressure or a short circuit in the motor winding there is such a high current consumption, that the temperature switch could be damaged. Such matters can only be controlled by the installation of an overload protection.

The machine starts running again automatically after cooling down.

No temperature protection is provided by the manufacturer for type **B-080**, **B-160**, **A-234** and **B-304**.

2.3.6 Protection type

The various basic models have protection type IP54 (see technical data page 15). The products must only be built-in or used individually corresponding to their protection types.

2.3.7 Direction of rotation

The units are equipped with fans which are independent of the direction of rotation. By this reason an instruction for the direction of rotation is not necessary.

3. OPERATING: SMALL OIL-FREE COMPRESSOR

It is important to note that the product has hot surfaces. There is a danger of being burnt if these surfaces are touched.

The products are designed for a nominal value of 10 bar.

3.1 Compressed air connection

The compressed air connection is on the back of the crankcase.
During product operation high surface temperatures and vibration can occur. For this reason we recommend a flexible, armoured pressure hose partially included in the production range (please see our accessories list).

Rigid connections lead to damage! Please use for connection an armoured pressure hose.

3.2 Suction filter

To preserve the life-span of the product, a suitable suction filter (noise damper) must be fitted. You will find a choice in the accessories list.
The air filter is plugged into the cylinder head.
Inclusive with original delivery.

3.3 Start against pressure

The majority of products do not start against pressure.

In this case the compressed-air piping must be exhausted before each start (e.g. via a mechanical exhaust valve in the pressure switch or through a solenoid valve).

3.4 Limiting the operating pressure

The pressure is a decisive factor in the life-span of the product. It is therefore recommended to work with the minimum pressure required.

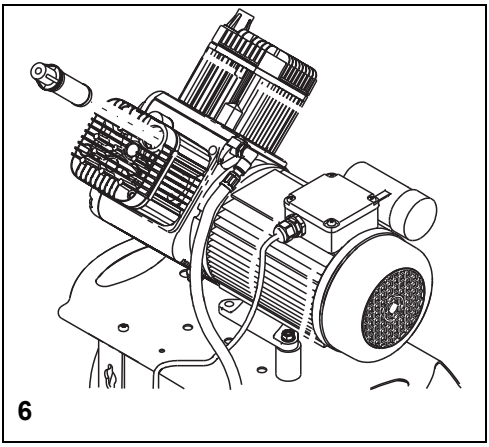
As the end pressure of the product is substantially higher than the nominal value, the system should be protected against excessive pressure, e.g. with a safety valve.

4. CLEANING

For faultless function it is necessary to keep the product clean.

The product has hot surfaces. Allow the product to cool down before commencing any cleaning procedure.

Clean the surfaces of the product with a fluff free cloth. Keep especially the ventilation openings of the crankcase chamber and the cylinder head free from dust and dirt.



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5. MAINTENANCE

The product has hot surfaces. Let the product cool off before starting any maintenance work.

5.1 Filter change

Prior to changing filter switch off mains and pull out the plug!

The maintenance interval of the suction filter or the exhaust filter depends mainly on the dust content of the aspirated material, the inserted filter and the insertion conditions. The filter must be changed at least once a year. Depending on ambient conditions the change may be more frequent.

Note
Dirty filters reduce the delivery output!

APPENDIX

Appendix 1: Technical data

Type	Art-No.	Delivery 0 bar	Delivery P_e 5 bar*	Start against pres-sure	Sound level	Nominal data					Weight	Protection type
						Motor wattage	Current con-sump-tion [1)]	Motor	Voltage	Frequenzy		
		l/min	l/min		dB(A)	P1(W)	A	min^{-1}	V	Hz	kg	IP
A-080	5150-100-50DT	80	60	no	68 73	800 980	4,3 4,4	1440 1710	1~230	50 60	24,5	54
B-080	5150-100-60DT	80	60	yes	68 73	800 600	4,4/3,0 2,5/1,8	1460 1500	3~230 3~400	50/60 50/60	24,5	54
A-160	5250-100-50DT	160	115	no	71 76	1300 1600	6,3 7,0	1300 1600	1~230	50 60	26	54
B-160	5250-100-60DT	160	115	yes	72 75	1400	5,4/4,4 3,1/2,5	1410 1690	3~230 3~400	50/60 50/60	26	54
A-234	5350-100-50DT	230	165	no	78	1900	8,1	1350	1~230	50	45,5	54
B-304	5450-100-60DT	290	230	yes	77 79	2200 2950	7,6/8,3 4,4/4,8	1440 1700	3~230 3~400	50/60 50/60	47	54

1) current at nominal voltage

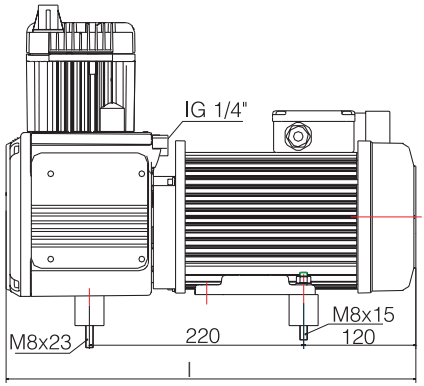
* Delilvery at 50 Hz according to ISO 1217 referring to the suction condition (at 60 Hz approx. + 18%)

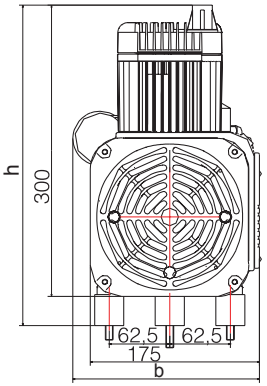
- All models are for S1-operation = 100% duty rating.
- PS = Safety pressure, max. allowable pressure

Since our products are subject to a process of continuous improvement, the technical specification may have changed. If you propose to base your planning on these Directions for Use, please contact us beforehand for details of current data and dimensions.

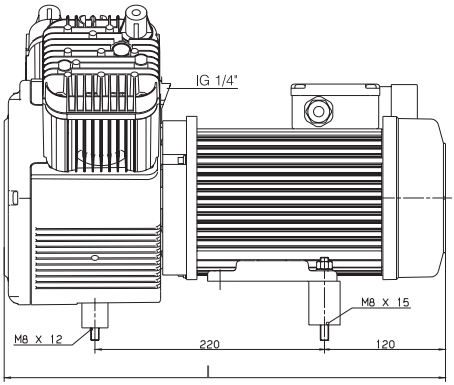
Appendix 2: Dimensions

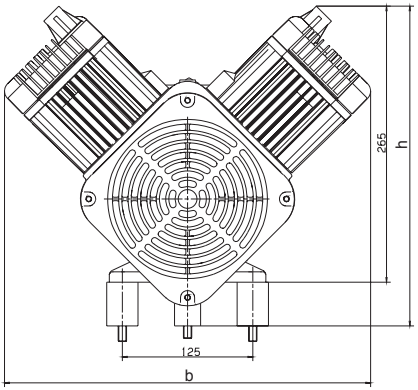
Type	Art.-No.	l	b	h
A-080	5150-100-50DT	423	193	330
B-080	5150-100-60DT	423	180	300
A-160	5250-100-50DT	423	350	300
B-160	5250-100-60DT	423	350	300
A-234	5350-100-50DT	620	350	315
B-304	5450-100-60DT	620	350	315



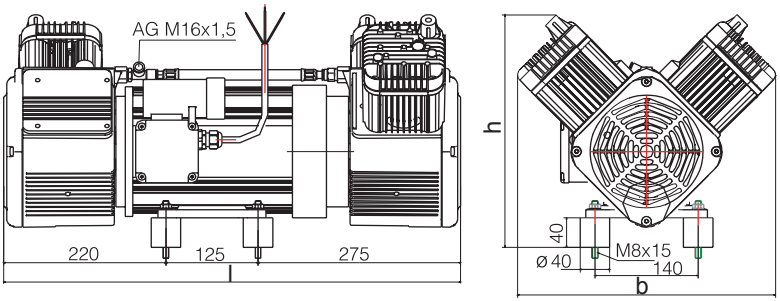


A-080 / B-080

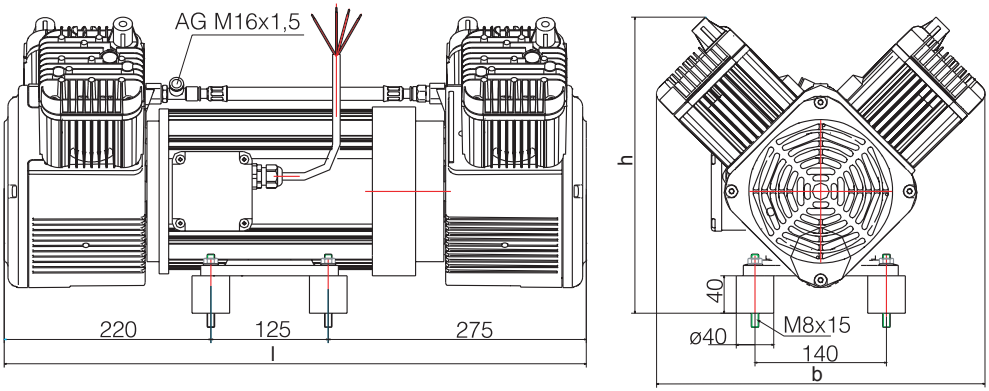




A- 160 / B-160


AG M16x1,5
220
125
275
l
h
40
ø 40
M8x15
140
b

A-234


AG M16x1,5
220
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ø40
M8x15
140
b

B-304

Appendix 3: Manufacturers Certificate

MANUFACTURER'S CERTIFICATE FOR MACHINES
98 / 37 EEC annex II, B

Manufacturer:	Dürr Technik GmbH & Co. KG
Adresse:	Pleidelsheimer Str.30 D-74321 Bietigheim- Bissingen
Reference number:	**Marathon**
Product name:	**Kompressor**
Starting with serial number:	**V 000001**

Herewith we declare that prior to initial operation, it must be determined that the machine in which this machine is to be installed, conforms to the stipulations of the applicable machine directive, 98/37/EEC
Directive for low voltage 73/23/EEC
Directive electromagnetic compatibility EMC 89/336/EEC

Following harmonized standards are applied
EN 1012-1:1996-07
EN 1012-2:1996-07
EN 60335-1:2007-02
EN 50106:2001-08
EN 60034-1:2005-04
EN 60034-5:2001-12
EN 55014-1,2:2002-08

Bietigheim- Bissingen, date 24.04.07

ppa. A.Ripsam
Vice President Dürr Technik

Signatures registered with original document
Dürr Technik archive

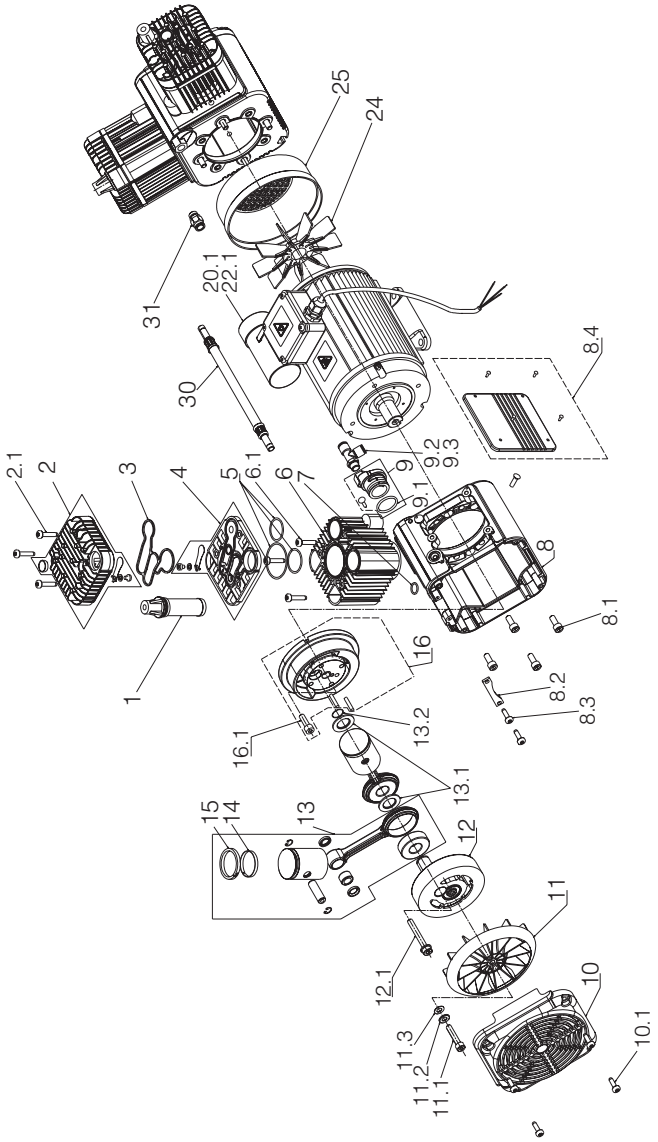
Appendix 4: Trouble shooting

The following description for fault finding is only meant for authorised personnel. Repairs must only be carried out by authorised personnel.

Fault	Possible cause	Remedy
Appliance does not start	• Mains voltage failure	• Check mains voltage • Check mains fuse, if necessary switch on appliance again (if indicating fuse defective, change it).
	• Low voltage	• Check mains voltage
	• Defective capacitor	• Check capacitor if necessary change it
	• Mains voltage compared to rated current too high	• under/overvoltage: measure voltage if necessary call electrician • Appliance mechanically sluggish, piston get stuck (protective motor switch): Pull out mains plug, take off crankcase cover of warmed up appliance and spin ventilator wheel; if not possible change piston and cylinder or complete appliance
	• Mains voltage compared to rated current constant	• Overcurrent switch set too low: (see technical data) measure current. Overcurrent switch defective: check overcurrent switch,
	• Suction filter blocked	• Insert new filter
	• Sluggish mechanically	• Factory repair
	• Pressure in line	• Ventilate air intake
	• Overcurrent switch has actuated	• Remedy cause
Appliance does not switch off	• Lamellar valve (inlet valve resp. outlet valve) between cylinder and cylinder head defective	• Dismount cylinder head and install new lamellar valve
	• Leakage in pressure hose system	• Impinge pipe system with pressure, if necessary seek leakage with spray and seal up
	• Compression cover at the piston used up	• Change piston and cylinder or complete appliance

Fault	Possible cause	Remedy
Appliance starts occasionally without consumer air tapping	• Leakage	• Seek leakage and seal up
Decrease in delivery performance	• Lines, hoses or connections leaking • Suction filter very dirty • Cylinder head seal defective • Lamellar valve (inlet/outlet valve) defective • Compression cover at the piston used up	• Check lines, hoses and connections (if possible, seal otherwise replace) • Change suction filter annually, **do not** clean, if necessary insert filter with greater filter surface • Change seal • Change lamellar valve and if necessary, valve plate and seals • Change piston and cylinder or complete appliance.
Noise level too high	• Bearing damaged • Vibrations transmitted to the housing • Defective anti vibration damper	• Werksreparatur • Fit suitable anti vibration dampers (see accessory list) • Fit new anti vibration damper

Appendix 5: Exploded diagram



Appendix 6: Parts list

Pos. No.	Description	A-080 5150-100-50DT	B-080 5150-100-60DT	A-160 5250-100-50DT
1	Suction filter	1x 9000-416-38	1x 9000-416-38	2x 9000-416-38
3,5,7	spare parts kit sealing set	1x 5150-981-00	1x 5150-981-00	2x 5150-981-00
30	Pressure hose	-	-	-
20.1	Capacitor	by request	-	by request

Appendix 7: Accessories list

Pos. No.	Description	A-080 5150-100-50DT	B-080 5150-100-60DT	A-160 5250-100-50DT
	Vibration damper set	5150-982-52	5150-982-52	5150-982-53
	Pressure switch with G1/4“ external thread	9000-301-58	9000-301-58	9000-301-58
	overcurrent switch (only usable with pressure switch)	by request	by request	by request
	Safety valve 10 bar with G1/4“ external thread (approved)	9000-326-20/X	9000-326-20/X	9000-326-20/X

B-160 5250-100-60DT	A-234 5350-100-50DT	B-304 5450-100-60DT
2x 9000-416-38	3x 9000-416-38	4x 9000-416-38
2x 5150-981-00	3x 5150-981-00	4x 5150-981-00
-	1x 5351-002-00	1x 5351-002-00
-	by request	-

B-160 5250-100-60DT	A-234 5350-100-50DT	B-304 5450-100-60DT
5150-982-53	0881-991-00	0881-991-00
9000-301-58	9000-301-58	9000-301-58
by request	by request	by request
9000-326-20/X	9000-326-20/X	9000-326-20/X

Appendix 8: Addresses

Technical advice
Dürr Technik GmbH + Co. KG
Pleidelsheimer Straße 30
74321 Bietigheim-Bissingen
Telephone +49 (0) 71 42 / 90 22 - 0
Fax +49 (0) 71 42 / 90 22 - 99
www.duerr-technik.de

Dürr Technik (UK) Ltd.
Unit 5 Ashmead Business centre
Ashmead Road
Keynsham
Bristol
BS31-1SX
Telephone 0117 9860414
Fax 0117 9860416
office@durrtechnik.co.uk

Dürr Technik Sverige AB
Box 302
S-571 24 Nässjov
Telephone 0380 - 55 49 80
Fax 0380 - 743 15

Spare parts service
Spare part orders to be sent in accordance with the existing spare parts list in writing, to the above address or by telephone to the following number

Telephone +49 (0) 71 42 / 90 22-31
Fax +49 (0) 71 42 / 90 22-99
office@duerr-technik.de

For ordering spare parts the following details are required:

- **Model no. and article no.**
- **Order no. as per parts list**
- **How many of each item required**
- **Exact address to dispatch to**
- **Dispatch details**

Repairs / return delivery
When returning products, if possible, use the original packing. Always pack the product in synthetic packaging material. If possible use recyclable packing material.

Appendix 9: Index

A

Accessories list 22
Addresses 24
Advice 6
Agreed application 8
Alternating current 12
Appendix 15
Assembly advice 10
Attention 6

C

Cleaning 13

D

definition 6
Dimensions 16
Direction of rotation 13

E

Environmental conditions 10
Exploded diagram 21

F

Filter change 14
Function description 8

G

general advice 6
General safety advice 6

I

Initial operation 9
Introduction 6

L

Limiting the operating pressure 13

M

Maintenance 14
Manufacturers Certificate 18
Motor protection 12

O

Operating 13
Operator 6

P

Parts list 22
Product 6
Product description 8
Protection type 13

Q

Qualified personnel 6

R

Repairs / return delivery 24

S

Sound level 15
Spare parts service 24
Start against pressure 13
Storage 9
storage requirements 10
Suction filter 13
Symbol explanation 6

T

Technical data 15
Three-phase current / star connection 12
Three-phase current /
threeangle connection 12
Transport 9
Trouble shooting 19

U

User 6

V

Vibration damping 11

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QUALITY AIR SOLUTIONS